

Twenty Questions About Fire Ants

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Biology

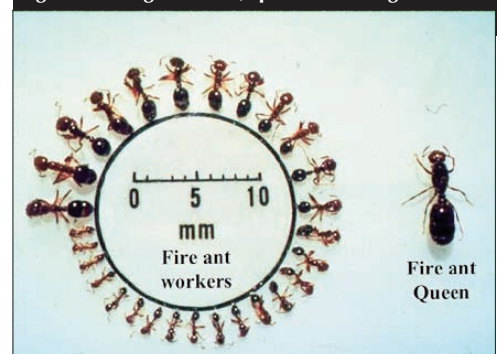
1. **How do I know I have fire ants? Are they the big fuzzy ants I see sometimes?** Fire ants are smaller than most people imagine. They are **NOT** velvet ants which are 1 to 2 inches long (see Figure 1). Fire ants range in size from 1/8 to 1/4 inch (see Figure 2). They are reddish brown in color and exhibit an **AGGRESSIVE** nature. Disturbing the mound that ants construct results in “swarms” of ants coming out of the mound. One characteristic of this ant species most people don’t want to experience is the painful sting and the resulting pustule.
2. **When I kick the top off a mound, what is the “white stuff”?** The “white stuff” is fire ant brood. Brood are immature fire ants. Ants have four stages – egg, larvae, pupae and adult. Brood is the eggs, larvae and pupae.

3. **How long do fire ant queens and workers live?** Fire ant queens have lived for as long as seven years, but on average live approximately three years. Worker ants’ life span is much shorter. Temperature impacts their lives – higher temperatures mean shorter lives. In general, fire ant workers live four to six weeks.
4. **How deep do fire ant tunnels go?** In the mound, fire ants have an extensive tunneling system. The tunnels are constructed to improve air movement throughout the colony. Tunnels have been found to a depth of 10 feet in some soils. Soil type also has an impact on the depth of the tunnels – clay soils will have deeper tunnels than sandy soils.
5. **Why do mounds pop up after a rain?** The ants are actively working the mounds – cleaning out tunnels and perhaps even preparing for a nuptial flight of reproductive ants (see question 6).

Figure 1. Velvet Ant



Figure 2. Range of sizes, queen to far right



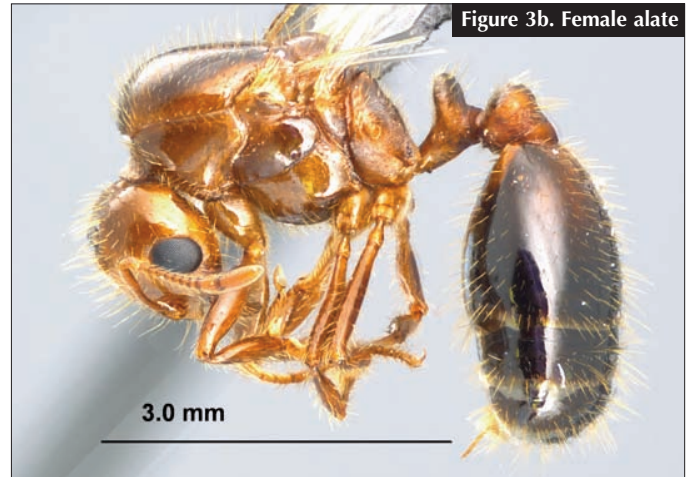
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Figure 3a. Male alate



Figure 3b. Female alate



6. **What are the winged ants?** The winged ants seen in a fire ant mound are reproductives also known as alates. Alates are ants capable of reproduction. There are male and female (virgin queen) alates. The males are black in color, and the females are reddish brown (see Figures 3a and 3b).
7. **How do fire ants spread from location to location? How far can they travel?** There are several ways fire ants spread. They include the winged flight of the reproductives (question 6). Studies have shown the queen can fly one-quarter of a mile on her own but can be carried for miles on the wind. “Budding off” is the process by which fire ant colonies with more than one queen start new colonies. Budding off is a “new” problem in managing fire ant populations. Movement of fire ant-infested material remains a primary method of movement. Plant nursery stock, hay and grass sod are some of the culprits.
8. **What do fire ants eat?** Fire ants are omnivorous. They eat both plant and animal material and live on dead insects. The only requirement for the food is that it contains protein, fat or carbohydrates.
9. **What kind of impact do fire ants have on the environment?** Fire ants have a definite impact on the environment. A decrease in ground-dwelling insects in habitats where the fire ants are well established is well documented. Their impact on wildlife including turtles, deer and quail is currently under study in various states.

Control

10. **Why do they move when I treat them with a pesticide or run over them with my lawn-mower?** Individual colony treatment with contact insecticides usually results in the death of many fire ant workers but may not always kill the queen. Disturbances associated with the application of insecticides can be sufficient to

cause the colony to move. For this reason, it is very important to closely follow label directions.

11. **Do any of the home remedies work – like gasoline and instant grits?** There are many home remedies mentioned to control fire ants – from instant grits, orange peels and gasoline, to vinegar, bleach and diatomaceous earth. Some home remedies do kill a few fire ants – but generally only cause the ants to move to another location.
12. **What are some organic methods to treat fire ants?** Fire ant baits containing the active ingredient spinosad as well as plant-derived contact insecticides are considered organic. Most spinosad fire ant baits (Greenlight® Fire Ant Control with Conserve®, Safer® Fire Ant Bait, Fertilome® Come and Get It) are certified for small-scale organic production. Pyrethrin is likely the most widely recognized plant-derived insecticide and is also used in organic production. However, the inert ingredients and synergist of

Home Remedy	Impact on Ant	Impact on Environment
instant grits	none	none
orange peels	some repellent action	none
gasoline	kills a few ants	potential movement into groundwater
vinegar	none	none
bleach	kills a few ants	potential movement into groundwater
diatomaceous earth	kills a few ants	none
ammonia	kills a few ants	potential movement into groundwater
urine	kills a few ants	potential phytotoxicity
gasoline + match	kills a few ants	potential personal injury
hot water	kills a few ants	potential personal injury



Fire ant baits are effective and provide long-term control.

some pyrethrin formulations are not organic and cannot be used in organic production. Organic producers should check with their certifier when in doubt about a specific insecticide formulation. Another “organic” method that is somewhat effective is hot water or steam applied directly to a fire ant colony.

- 13. What can I use that is affordable?** Although the bait products may appear to be quite expensive, when used with the two-step method of control they are affordable and provide longer term control than many other products. Baits are effective and often provide longer term control because they are products that impact the queen and/or her egg-laying ability.



Figure 4. Fire ants can form balls on water and float to new locations.

- 14. How toxic are the baits to humans and pets, especially birds?** Bait materials have a variety of active ingredients with varying toxicity levels. Because such a small amount of active ingredient is placed on the bait particles, humans or animals would have to eat a huge amount before getting sick or dying. For example, to exceed the oral LD₅₀ standard, a 50-pound dog would have to eat nine pounds of Amdro (hydramethylnon) fire ant bait. The LD₅₀ standard refers to the lethal dose needed to kill 50 percent of the test animal population. See the table below for toxicity of fire ant baits.

- 15. Can I drown them?** Fire ants as a group cannot drown. Fire ants can form balls on the water and float to new locations after a flood (Figure 4).

Test Species	Product	LD ₅₀ *	Product Amt≥LD ₅₀
Rat	Amdro®, Amdro® Pro (0.73% hydramethylnon)	1,300 mg/kg BW	9 pounds for 50-pound dog
Rat	Award® (1.0% fenoxycarb)	>10,000 mg/kg BW	50 pounds for a 50-pound dog
Rat	Esteem®, Distance® (0.5% pyriproxyfen)	>5,000 mg/kg BW	50 pounds for a 50-pound dog
Rat	Greenlight® Fire Ant Control with Conserve®, Safer® Fire Ant Bait, Fertilome® Come and Get It (0.015% spinosad)	>5,000 mg/kg BW	340 pounds for a 50-pound dog
Rat	Extinguish® (0.5% methoprene)	34,600 mg/kg BW	345 pounds for a 50-pound dog
Rat	Varsity™, Clinch™ (0.011% abamectin)	10 mg/kg BW	4.5 pounds for a 50-pound dog
Mallard Duck	Amdro®, Amdro® Pro (0.73% hydramethylnon)	>2,510 mg/kg BW	1 pound for a 3-pound duck
Mallard Duck	Award® (1.0% fenoxycarb)	3,000 mg/kg BW	0.9 pound for a 3-pound duck
Mallard Duck	Esteem®, Distance® (0.5% pyriproxyfen)	>2,000 mg/kg BW	1.2 pounds for a 3-pound duck
Mallard Duck	Greenlight® Fire Ant Control with Conserve®, Safer® Fire Ant Bait, Fertilome® Come and Get It (0.015% spinosad)	>2,000 mg/kg BW	8.2 pounds for a 3-pound duck
Mallard Duck	Extinguish® (0.5% methoprene)	5,650 mg/kg BW	3.3 pounds for a 3-pound duck
Mallard Duck	Varsity™, Clinch™ (0.011% abamectin)	383 mg/kg BW	10.4 pounds for a 3-pound duck
Fish**	Amdro®, Amdro® Pro (0.73% hydramethylnon)	160-1700 ppb	0.06-0.64 oz. in a 20-gallon tank
Fish**	Award (1.0% fenoxycarb)	660-740 ppb	0.17-0.20 oz. in a 20-gallon tank
Fish**	Esteem®, Distance® (0.5% pyriproxyfen)	270-325 ppb	0.20-0.42 oz. in a 20-gallon tank
Fish**	Greenlight® Fire Ant Control with Conserve®, Safer® Fire Ant Bait, Fertilome® Come and Get It (0.015% spinosad)	5,940-30,000 ppb	10.70-546.00 oz. in a 20-gallon tank
Fish**	Extinguish® (0.5% methoprene)	370-460 ppb	0.20-0.42 oz. in a 20-gallon tank
Fish**	Varsity™, Clinch™ (0.011% abamectin)	3-9.6 ppb	0.07-0.24 oz. in a 20-gallon tank

* LD₅₀ of active ingredient
 ** Data from rainbow trout and bluegill sunfish
 Data obtained from EXTOTOXNET pesticide information profiles and MSDSs.

BW = Body Weight
 ppb = parts/billion

Figure 5. Phorid fly, a possible impact on fire ants.

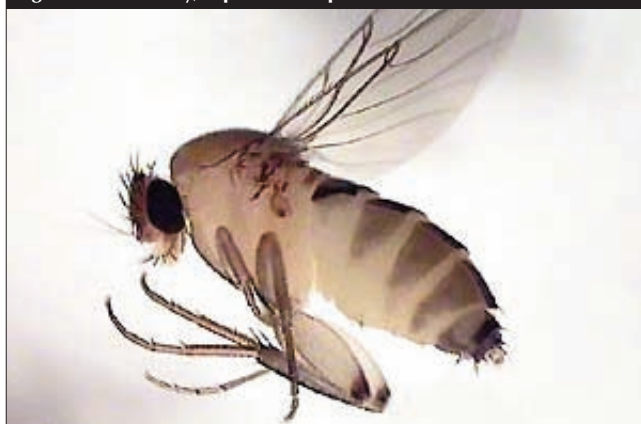
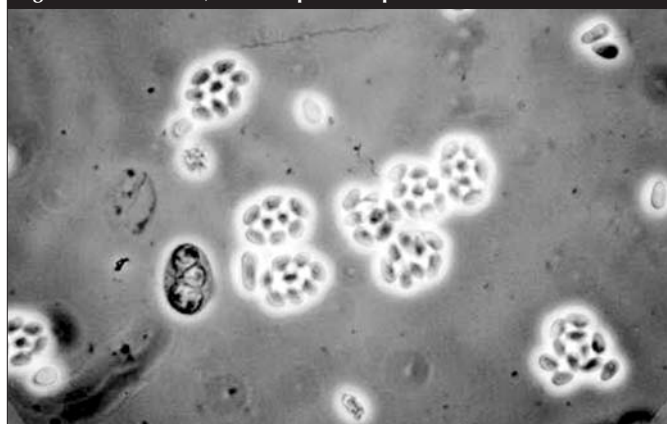


Figure 6. Thelohania, a microsporidian protozoa.



16. Will a hard winter kill them? Studies have shown that a minimum of two weeks of temperatures lower than 10°F would be needed to have a kill significant enough to affect the number of fire ant colonies.

17. If you mix colonies, will they kill each other? It is a common myth that mixing fire ant colonies will cause the ants to kill each other. There is the potential that some workers will be killed, but in general the queen or queens are NOT impacted, and the colonies will just move to another location.

18. What control measure can I use in my garden? There are various insecticides labeled for use in the garden or on crops. However, the only fire ant bait products labeled for use in gardens are those containing methoprene (Extinguish® Fire Ant Bait), pyriproxyfen (Esteem®) and spinosad (Fertilome® Come and Get It, Greenlight® Fire Ant Control with Conserve® and Safer® Fire Ant Bait).

19. When are the natural enemies of fire ants going to be available to me to release? Phorid flies, or decapitating flies (Figure 5), and Thelohania, a

microsporidian protozoa (Figure 6), have been released in Arkansas to determine if they will have an impact on fire ant populations. To date, the research is **NOT** concluded. The natural enemies will build up in the environment on their own, it is hoped. Any movement of the organisms into new areas will be controlled at this time.

20. Are there any benefits to having fire ants? Fire ants have been shown to decrease some pest insect numbers. Cotton growers in Texas and sugarcane growers in Louisiana appreciate the predatory nature of the ant. Also, tick presence may be decreased in pastures infested with fire ants.

Other Fire Ant Publications

- FSA7036 Fire Ant Control in Two Easy Steps
MP426 Managing Imported Fire Ants in Urban Areas
FSA7051 Fire Ant Abatement
FSA7053 The Federal Imported Fire Ant Quarantine

Visit our web site at:

www.aragriculture.org/insects/fireants/default.htm.

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